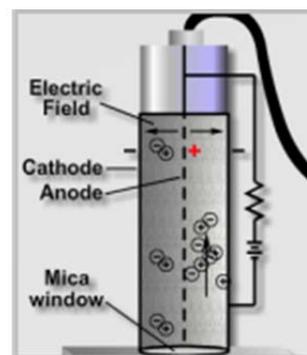


The Geiger Counter. The tube itself is the cylinder on top of the metal cube housing; the face of the counter is pointed directly down inside this housing. To get a better idea of how the counter works hover the mouse over it to see what's going on at an atomic level inside the tube. This display will also show labels for the components of the tube and the 'photons' travelling up through the tube from the radioactive source.



The electrometer/timer. The fancy machine to the right of the tube functions as both an electrometer and a timer. An electrometer supplies voltage to an instrument, in this case the Geiger tube, and receives electrical signals in return, in this case numbers of events or just plain counts.

To adjust the operating voltage of the electrometer, click and rotate the blue knob. Below the knob are various buttons for starting, stopping, and clearing the timer, the counter, or both at the same time. If either is already started, pressing start again will not reset them; they must first be cleared. If either is reset without stopping, they will return to zero but immediately start up again.



The aluminum discs. If the radiation is just too strong to handle it, it can be attenuated or lessened by adding one or more aluminum discs to the counter assembly. These discs are found in the center of the screen just below the electrometer. Click, drag, and drop any or all of the discs to and from the counter.



The Strontium-90 source. The silver colored disc on the left of the screen is the Strontium-90 source. Its activity is $1\mu\text{C}$, or 10^{-6} Curies. Its half-life (28.1 years) is long enough that we shouldn't have to worry about it decaying a significant amount during the experiment. To test it with the Geiger counter, just click, drag, and drop it under the tube. If the Barium source is already there, you'll have to remove it first.



The Minigenerator. In order to measure something with a short half-life, we'll have to create it on the spot. The Minigenerator, on the left of the screen, is a special syringe that passes an acid-saline solution through a Cesium-137 source to wash out some of its by-product, namely a metastable Barium-137m. To do this, click, drag, and drop the Minigenerator over the blue planchette and it will snap into place. After that, push down on the plunger by clicking and dragging it downward, and release. The little blue disc will then be filled with Ba-137m. For safety's sake, this can only be done with an empty planchette.

Ba-137m Planchette. Most of the work here is done by the Minigenerator above. Once it is used to fill the planchette with the Ba-137m solution, the little blue disc can be dragged up to the Geiger counter for testing (again, assuming the Sr-90 isn't already in place). If the Barium has decayed too much or if we just want to start from scratch, move it back to its green mat, and click on the "Trash" button on the box to the right. The old planchette should be kicked into the waste pile, and a new one will slide in. You may have to give it a nudge to get it back onto the mat completely.



Trash. A very environmentally-friendly trash receptacle. Clicking the "Trash" button will kick any Ba-137m planchette that's on the table into the trash and deliver a new, fresh one. Once in the trash, the planchette and radioactive materials are dissolved and recycled to be used in fast food around the world.

